

According to the present invention, there is provided a method of manufacturing a semiconductor device, where a soluble thin film which is soluble in a dissolving liquid is used. According to the method of the present invention, when a soluble thin film is formed between a film to be processed which should be patterned and a mask pattern, it becomes possible to remove the mask pattern by lifting-off. On the other hand, when the thin film is used for a dummy layer for forming an air wiring structure, the dummy layer can be removed without performing ashing using oxygen plasma.